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ABSTRACT

This study examined the effectiveness of the first year of a project designed to support the use of computers to improve the writing skills of middle level students. Subjects, 2,285 students from all of the 16 school districts in Delaware, engaged in daily writing activities on computers using the process approach to writing. One teacher from each district was provided training and technical assistance to facilitate appropriate hardware and software acquisition and use of the writing process. Program implementation was assessed, as were student writing skills and attitudes toward writing. Results indicated that: (1) adequate orientation and training were provided to the participating schools; (2) students significantly gained in writing skills, enjoyment of writing, and in enjoyment of computer-assisted instruction; and (3) teachers enjoyed using the program. (One figure and six tables of data are included; 14 project documents and data collection instruments are attached.) (RS)

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THE DELAWARE MIDDLE LEVEL COMPUTER WRITING PROJECT

FIRST YEAR EVALUATION REPORT

By

Russell A. Dusewicz
Francine S. Beyer

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August 1990

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Executive Summary

As a follow-up of previous efforts to utilize computers in the language arts area, the Delaware Department of Public Instruction with the assistance of Research for Better Schools initiated a program to support the use of computers to improve writing skills of middle level students. The project was implemented in each of sixteen school districts throughout Delaware. One teacher from each district at the middle level used the program with all of his/her classes. Training and technical assistance were provided to involved schools and teachers to facilitate appropriate hardware and software acquisition and use with the writing process. Monitoring activities were conducted to aid in implementation of the program at each site. Evaluation activities were undertaken to assess first year results.

The computer writing project had the following four goals:

- to improve student writing skills through the use of computer-assisted instruction for the teaching of the writing process
- to improve student enjoyment of writing
- to improve student enjoyment of computer-assisted instruction for writing
- to identify teacher needs with regard to implementing key elements of the instructional program.

The project goals relating to implementation and effectiveness concerns were translated into process and outcome evaluation questions to be addressed in the evaluation design. A pre-test -- post-test control group design was utilized. Each participating school district was not only to provide an experimental group and teacher but also a comparable control or comparison group where possible.

Program implementation was assessed through readiness checklists, training evaluation forms, classroom observations, and teacher feedback. Student writing skills for both experimentals and controls were tested through use of pre- and post-writing samples, analytically scored. A student survey was used to measure enjoyment of the writing process and the use of computers in writing instruction.

The evaluation questions and the findings for each are summarized in the figure on the following page. It is clear that the program achieved remarkable success in its first year of implementation. Students significantly gained in writing skills, enjoyment of writing, and in enjoyment of computer-assisted instruction. Teachers also enjoyed using the program. Recommendations are made for further evaluative study to assess the maximum potential of the program, to investigate the barriers to successful implementation, to study teacher changes in instructional style, and to study student changes in learning style.

Evaluation Questions and Findings

Questions	Findings
Orientation - Was adequate orientation and assistance provided for planning and selection of hardware/software?	YES - Orientation and assistance was highly rated by those schools and teachers taking advantage of what was offered.
Selection and Acquisition - Was the appropriate hardware and software ordered and delivered on time?	YES - The majority of schools ordered and received the appropriate hardware and software on time.
Training - Was adequate inservice training in computer literacy, the writing process, and the use of computers in teaching writing provided to Project Teachers?	YES - Inservice training was highly rated by those schools and teachers taking advantage of what was offered.
Implementation - Did the teachers start-up on time and implement the key program elements (writing process approach, computer use, mini lessons, conferencing, monitoring)?	YES - Most teachers started the program on time and implemented all key elements.
Writing Skills - Were student writing skills enhanced as a result of participation in the Project?	YES - Across schools, experimental students scored significantly higher than controls on writing assessment total score and three of four sub-scores: organization, development, conventions. No significant difference was found for the focus sub-score (analyses of covariance). - Individual schools varied considerably. But within schools, writing assessment total score and each of the four subscores, showed experimental groups out-gaining controls in at least 10 of the 16 school sites (gain score comparisons)
Enjoyment of Writing - Did students get more enjoyment of writing as a result of participation in the Project?	YES - Both experimentals and controls across schools gained significantly (correlated t-test). But experimentals gained more than twice as much (gain score comparison).
Enjoyment of Computer Learning - Did students enjoy using the computer for learning and practicing writing skills.	YES - Both experimentals and controls across schools gained significantly (correlated t-test). But experimentals gained more than five times as much (gain score comparison).

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Project Documents and Data Collection Instruments

- Memorandum of Agreement
- Schedule of Activities for Delaware Middle School Writing Project
- Guidelines for Selection of Control or Comparison Group
- Agenda for April and May Orientation Sessions
- Readiness Checklist for Participation in the Middle Level Computer Writing Project
- Teacher Inservice Evaluation Form
- School Hardware/Software Decisions Form
- Telephone Readiness Checklist
- Software Training Evaluation Form
- Classroom Observation Form
- Teacher Log
- Writing Assessment and Scoring Procedures
- Pre-Writing Assessment, Student Survey #1, Instructions
- Post-Writing Assessment, Student Survey #2, Instructions

Introduction

For the past several years, the Delaware Department of Public Instruction (DPI) has been making a concerted effort to increase the use of computers for instruction in traditional subject areas. During the 1987-1988 school year DPI, with the assistance of Research for Better Schools (RBS), pilot tested an inservice program for language arts and social studies teachers designed to facilitate their increased use of computers for instruction. The results of the pilot provided evidence that computers are effective tools for assisting instruction. The results also seemed to illustrate the many barriers and pitfalls to overcome in implementing a successful computer-assisted instruction program.

The following year, it was decided to extend this initiative into the area of writing instruction. A program was established to support the use of computers to improve the writing skills of middle level students. The lessons learned from the computer pilot test of the prior year's inservice program were incorporated into the planning of a new effort. Specifically, in February 1989, the DPI proposed a project to support and study the use of computers in the classroom to assist teachers in their instruction of the writing process at the middle school level. The project was to be implemented in each of sixteen school districts throughout Delaware. Writing teachers in each of the selected middle schools (one per district) were to participate. The DPI requested assistance from Research for Better Schools in carrying out several activities essential to the study. RBS was to assist the DPI in providing staff development and technical assistance and was to conduct an evaluation of the project.

This report summarizes the evaluation activities for the Delaware Middle Level Computer Writing Project. It contains four sections and an

appendix. The remainder of this section describes the Project goals and the program elements. The second section presents an overview of the evaluation design and procedures carried out by RBS in conducting its evaluation study. The third provides a brief description of the results of these evaluation activities. The final section presents a summary of evaluation procedures and findings, along with some conclusions and implications. The appendix contains copies of key project documents and data collection instruments. These include:

- Memorandum of Agreement
- Schedule of Activities for Delaware Middle Level Writing Project
- Guidelines for Selection of Control or Comparison Group
- Agenda for April and May Orientation Sessions
- Readiness Checklist for Participation in the Middle Level Computer-Writing Project
- Teacher Inservice Evaluation Form
- School Hardware/Software Decisions Form
- Telephone Readiness Checklist
- Software Training Evaluation Form
- Classroom Observation Form
- Teacher Log
- Writing Assessment and Scoring Procedures
- Pre-Writing Assessment, Student Survey #1, Instructions
- Post-Writing Assessment, Student Survey #2, Instructions

Project Goals

The design of the computer writing project was guided by four goals. These goals were as follows:

- to improve student writing skills through the use of computer-assisted instruction for the teaching of the writing process
- to improve student enjoyment of writing
- to improve student enjoyment of computer-assisted instruction for writing
- to identify teacher needs with regard to implementing the five elements of the instructional program.

Additionally, it was anticipated that the Project would have a positive

impact on teachers in their classroom instruction. These four goals guided the development of the evaluation design (see the Design and Procedures section of this report).

Key Elements

The program had five principal components or key elements. These were:

- teacher daily use of the writing process approach to teaching writing, focusing on the stages of pre-writing, drafting, and revising
- teacher daily use of all computers for students, on a rotating basis, to work through their writing assignments
- teacher daily use of a short writing lesson or mini-lesson, thus allowing students to spend most of their class time working on writing assignments
- teacher daily use of conferencing, with individuals or small groups of students, to encourage students' writing (as author, rather than as critic)
- teacher on-going monitoring of students working on the computer and on writing assignments, to be aware of their progress and needs for assistance.

Each of the five components of the program needed to be carried out effectively if the desired outcomes were to be realized.

Design and Procedures

A total of sixteen middle schools participated in the computer writing program, one classroom in each of the sixteen districts in Delaware offering middle level education. An experimental teacher was selected to teach the computer writing program to his/her classes at each school. In addition, each school was to provide a comparable control or comparison group where possible. The control group could consist of: (a) a comparable teacher and classes within the same school, (b) all other students (non-experimental) at that grade level within the same school, or (c) a teacher and students at a different but comparable school. Thirteen of the sixteen participating schools were able to provide control groups for the evaluation study. These

control groups were selected on the basis of comparability of teachers and students and on the expectation that the control students would have limited exposure to the use of a computer in learning writing skills. Experimental and control group students were administered the same evaluation instruments on a pre- and post-test basis.

Each of the sixteen districts that participated in the Delaware Middle Level Computer Writing Project was required to sign a Memorandum of Agreement acknowledging the specific conditions required for participation. During the spring of 1989, staff from the DPI and RBS attended several meetings to plan for the Project's implementation and evaluation. One of the outcomes of these planning sessions was the development of a timeline for Project activities.

The Project was designed with four stages in mind, each of which was to be evaluated. They were: 1) orientation of participating teachers, 2) selection and acquisition of hardware and software, 3) training of participating teachers, and 4) implementation. The first two stages were completed during the spring and summer of 1989. Then, district personnel selected the hardware and software needed for implementation and teachers began, early in the school year, to use the computers in their daily instructional activities. Throughout the school year, teachers were monitored and were provided with technical assistance and support as needed.

Evaluation Design

The Project goals were incorporated into a set of four process and three outcome evaluation questions which formed the framework for the evaluation design. This framework is outlined in Figure 1.

The process component of the evaluation was to focus on insuring that prerequisite conditions for proper program implementation were met. It was

Figure 1

EVALUATION DESIGN

Process Evaluation

Evaluation Question	Measure	Expectation
Orientation - Was adequate orientation and assistance provided for planning and selection of hardware/software?	• Readiness Checklist • Teacher Inservice Evaluation Form	• Mean overall rating of 4 or above on a 5-point Likert scale. • Training needs identified.
Selection and Acquistion - Was the appropriate hardware and software ordered and delivered on time?	• School Hardware/Software Decisions Form • Telephone Readiness Checklist	• Necessary and appropriate hardware/software, selected ordered, and received by September.
Training - Was adequate inservice training in computer literacy, the writing process, and the use of computers in teaching writing provided to Project teachers?	• Software Training Evaluation Form • Teacher Inservice Evaluation Form	• Mean overall rating of 4 or above on a 5-point Likert scale. • Any outstanding needs to be met by September 1.
Implementation - Did the teachers start-up on time and implement the key program elements (writing process approach, computer use, mini-lessons, conferencing, monitoring)?	• Telephone Readiness Checklist • Classroom Observation Form • Teacher Log • Teacher Feedback	• All training hardware, software needs satisfied. • Program on schedule for start-up in September. • Regular use of key program elements in classroom by all teachers.

EVALUATION DESIGN (continued)

Outcome Evaluation

Evaluation Question	Measure	Expectation
Writing Skills - Were student writing skills enhanced as a result of participation in the Project?	• Pre- and Post-Writing Assessment	• Significantly greater writing proficiency in program group over comparison group.
Enjoyment of Writing - Did students get more enjoyment of writing as a result of participation in the Project?	• Pre- and Post-Student Survey • Teacher Anecdotes	• Significantly enhanced enjoyment of writing by self-report in program group over comparison group. • Teacher reports of students' enhanced enjoyment of writing.
Enjoyment of Computer Learning - Did students enjoy using the computer for learning and practicing writing skills?	• Pre- and Post-Student Survey • Teacher Anecdotes	• Student responses indicate enjoyment in using the the computer for writing assignments. • Teacher reports of students' enjoyment of using the computer for writing.

therefore designed to study the course of the four stages of the Project, to document their progress, and to assess the quality of their associated activities. Feedback from the process evaluation was to be used by Project administrators and staff to adjust and fine tune Project activities in order to make the activities more effective.

The outcome component of the evaluation was designed to assess the effects of the Project on student writing skills and on student attitudes toward writing and toward using the computer for writing. A pre-test-post-test control group design was used to enhance the validity of the findings. Guidelines for selecting the control or comparison group for each Project class included specifications that the two groups be as similar as possible on key characteristics (i.e., type of student, achievement levels, demographic variables). Feedback from the outcome evaluation was to document overall program effectiveness and to provide information useful in making decisions about Project expansion or replication.

Procedures

Figure 1 describes the process and outcome evaluation design in terms of evaluation questions, measures, and expectations for each of the four stages of the Project. The evaluation procedures associated with each evaluation question are described in detail below. The results of these procedures are presented in the Results section of the report.

Orientation. The sixteen Project teachers and several of their school administrators participated in a two-day workshop in the spring of 1989. The workshop was designed to provide an orientation to the Project, and an overview of writing software, computer hardware, and approaches for using the computer to assist with writing instruction. During the first orientation session, teachers were administered the Readiness Checklist to

determine their district/school's readiness to participate in the Project. At the conclusion of the second day of the orientation workshop, participants were administered the Inservice Evaluation Form to obtain feedback on the orientation sessions and also to assess their readiness to select the necessary hardware and software for the Project.

On May 1, 1989, an orientation session was held for principals and computer coordinators from the sixteen middle schools. This session was designed to provide administrators with an overview of the Project and the required implementation tasks (e.g., to participate in hardware and software selection) and to address any concerns or questions that might arise prior to implementation. This activity was observed and evaluated by RBS staff.

Selection and Acquisition. RBS constructed a School Hardware/Software Decisions Form to be completed by administrators in each district in conjunction with the Project teacher, by June 1, 1989. The form asked for specifications on the type of computer hardware and software package(s) the districts decided to purchase for the Project.

In terms of the acquisition of the materials ordered, RBS telephoned each of the principals of the participating schools and used a Telephone Readiness Checklist to identify staff readiness to implement the Project. Information was collected on whether the hardware and software ordered had been received, set-up, tested, and was ready to be used for instruction.

Training. The Inservice Evaluation Form, discussed earlier, served as a vehicle for identifying teacher need for further training on computer hardware, software, or on the writing process. To respond to these identified needs, two workshops were conducted at Delaware State College during the week of August 21 - 25, 1989. The first workshop, conducted by the DPI, was a fifteen hour course on the Delaware Writing Process for which

teachers received one inservice credit.

The second workshop consisted of fifteen hours of training on the specific hardware and software teachers selected to install for use in the Project. This latter workshop was conducted by DPI staff, RBS staff, and representatives from computer vendors. At the conclusion of the workshops, RBS administered a Software Training Evaluation Form to assess the effectiveness of the training on the various hardware and software packages and to identify additional needs, if any.

Implementation. The implementation of the Project was addressed by the process and outcome evaluation components. The process evaluation focused on monitoring teacher use of the five program elements presented earlier (i.e., the writing process, the computers, mini-lessons, conferencing, and monitoring).

Information on the course of implementation of these program elements was collected through three process evaluation activities, classroom observations, teacher logs, and follow-up meetings. Initial information on start-up dates for implementing the program was determined when RBS telephoned the principals of the participating schools at the beginning of the school year.

A Classroom Observation Form was developed to collect information during observations of participating teacher classrooms. Three rounds of observations were conducted, two by RBS (one at the beginning and one at the end of the school year) and one by the DPI (mid-year). Teachers' self-report data on their implementation of the program elements was documented through a Teacher Log and through discussions at follow-up meetings. Two follow-up dinner meetings were convened, the first on November 28, 1989 and the second on February 15, 1990. The major objectives

for each meeting were: 1) to facilitate sharing/communication among Project participants, 2) to identify any additional assistance and support needed by participants to implement the Project, and 3) to develop plans to provide the needed assistance in a timely fashion. A third meeting, on May 29, 1990 was held to facilitate sharing/communication among Project participants and to discuss future plans.

The outcome evaluation focused on the impact of the Project on student writing proficiency, and on student enjoyment of writing and of using the computer for writing. In planning for the outcome evaluation, RBS developed a document describing the general approach, instrumentation, and scoring. As stated previously, the evaluation plan incorporated a pretest-posttest control group design.

Writing Skills. In order to assess student writing skills, Project and control teachers administered a Pre-Writing Assessment at the beginning of the school year, and a Post-Writing Assessment at the end of the school year. The assessments required students to produce a short writing sample in response to the following prompts:

- "Think about one change that you would like to make in your school and why you would like to make that change. Give reasons why the change should be made, and explain how the change would benefit the school..." (Pre-Writing Assessment).

- "Think about one change that you would like to make in the town or city in which you live and why you would like to make that change. Give reasons why the change should be made, and explain how the change would benefit your town or city..." (Post-Writing Assessment).

These prompts were similar to those used in the 1985 Delaware Writing Assessment Project, and were determined to have the potential for producing a range of scorable student responses. They were also judged to be free of bias, interesting to students, and unambiguous.

Enjoyment of Writing and Computer Learning. Information on student

attitudes was collected through a Student Survey attached to each writing assessment. Each survey consisted of the same eleven multiple choice items addressing student experiences with writing assignments and computer use. Additional impact data were obtained through teacher reports and anecdotes shared at follow-up meetings and during school visits and telephone contacts.

Results

The following section of the report presents the results of the data analysis. The findings are discussed in terms of the process and outcome evaluation questions.

Process Evaluation Results

The evaluation design, as illustrated in Figure 1, specifies four process evaluation questions to address the implementation of the Project. The results of the process evaluation activities are reported around these questions.

Was adequate orientation and assistance provided for planning and selection of hardware/software? Thirteen Project teachers attended the two-day orientation session. The Readiness Checklist administered during the first day indicated that perceptions of the district/school leadership's commitment and support for the Project, as well as the teachers' own commitment toward the Project, were very high. The results also indicated that, while teachers had previously attended workshops on the writing process, they had only limited experience using a computer in personal writing tasks.

The results of the Inservice Evaluation Form, administered at the conclusion of the second day of the orientation workshop, were very

positive. In terms of implementation readiness, respondents indicated an awareness of the writing process and how to use the computer to teach writing for classroom instruction. Although most teachers were exploring hardware and software options with administrators, a few indicated that either the selections were being made for them or that they were not able to contribute to the decisions. Most teachers also indicated a need for further training on the hardware, software, and -- to a lesser extent -- on the writing process. To address these training needs, a week-long workshop was scheduled for the end of August.

RBS's evaluation of the orientation session for principals and computer coordinators indicated the objectives of the session were met. In addition, participants exhibited enthusiasm and support for the Project.

Was the appropriate hardware and software ordered and delivered on time? The selections of hardware and software packages for the Project were based on the information gained at the orientation sessions, the Resource Book developed by RBS and the DPI, and through demonstrations and discussions with vendors and district administrators.

The School Hardware/Software Decisions Form, completed by administrators in each district in conjunction with the Project teacher, indicated that all sixteen schools selected and purchased at least six computers, one printer, and writing software by early June. In terms of the computer hardware, eight districts selected Apple MacIntosh computers (Plus, SE, II), five selected Apple IIe computers, one district selected Smart Micro (IBM compatible), one selected Apple IIGS, and one selected Hyundai. The writing software selected and ordered to support implementation of the Project included: Writer's Helper II (seven districts), Success with Writing (two districts), and Bank Street Writer III (two districts). Also, two

districts selected each of the following word processing software packages: MacWrite, Word, Wordbench, WordPerfect, and Works.

Following the training sessions at the end of August, the Telephone Readiness Checklist was administered to all principals in order to identify staff readiness to implement the Project. Only two principals indicated that Project teachers definitely needed additional hardware and software training, and all felt that training on the writing process was sufficient. In most cases, the hardware and software had been received and set up, and only one principal reported that the equipment had not been tested. A few principals, however, reported minor problems (e.g., all materials -- software, printers, discs -- not received, electrical hook-ups and computer tables needed, defective monitor). These problems were followed up by RBS and the DPI.

Was adequate inservice training in computer literacy, the writing process, and the use of computers in teaching writing provided to Project teachers? Nine Project teachers participated in the workshop on the hardware and selected software. Feedback on the Software Training Evaluation Form showed that high ratings were given to both the sessions and the presenters. Overall, teachers felt that they received the support they needed on using the hardware and software. In terms of implementation readiness, they reported feeling comfortable with using the software for the writing and revising stages, but a little less comfortable with using the software for prewriting or planning. Although most teachers felt that they needed additional practice before training students, their major concern seemed to be with managing a classroom which contained computers. These concerns were monitored by the DPI and RBS through school visits and personal contacts.

Did the teachers start-up on time and implement the key program elements? Program start-up dates were provided by principals as part of the Telephone Readiness Checklist, administered in late August. Four principals indicated the start-up date for implementing the program would be the first week in September, two principals indicated mid-September, two indicated late September, and eight indicated the program would start "as soon as possible." The DPI and RBS continued to monitor each teacher's progress in beginning implementation. Although most teachers began using their computers by October, the initial start-up generally involved several weeks of "trouble-shooting" (i.e., setting up the classroom, debugging software, managing the classroom, ordering materials, maintaining Teacher Logs).

Information on program implementation was collected through conducting classroom observations, using the Classroom Observation Form, reviewing Teacher Logs, and discussing the Project with teachers and students. Although the Logs were scanned during observations and requested for submission at the end of the school year, only half of the Project teachers recorded this information on a regular basis; the remaining teachers reported it was difficult to find time to recall and enter the required information in the typical "hectic" school day. However, those who did maintain the Teacher Log indicated that it provided useful information for their instructional planning.

Over the course of the first round of observations, conducted by RBS in mid to late October, technical problems were resolved and almost totally eliminated. When a school was identified as needing technical support and assistance, this information was fed back to the DPI and follow-up was provided. For example, computer vendors were contacted if hardware was the problem, the DPI provided technical assistance to help implement software

and address software 'bugs,' and visits among Project staff were facilitated.

In terms of teaching writing, the observations indicated that all teachers were focusing their instruction on the writing process, i.e., planning, revising, and editing techniques, and a few teachers were using a mini-lesson format. However, in discussions with teachers, most indicated that they did use mini-lessons on a regular basis, but use of such lessons varied with the class and assignment. Also, approximately half of the teachers were observed conferencing with individual students. Again, it was not expected that all students would be observed to be at this stage in the writing process. In several classes students were observed conferencing with each other, an activity which some teachers were using prior to or in lieu of student-teacher conferencing. This strategy seemed to work well; students appeared to enjoy the "author-to-author" interaction with their peers and to have the necessary skills to provide helpful feedback. Overall, teachers were observed providing extensive individual monitoring and assistance to students working on their writing assignments and also to students working on computers.

Observations concerning computer use were also very positive. All teachers had developed a system for computer use such that every student was scheduled to be on the computer one or more times a week, usually to work on and complete at least one assignment. In many classes the schedule was posted. Teachers had from six to ten computers available (and 1 or 2 printers), and they were all in use during each observation, by one or two students, for an average of 30 minutes.

Teachers were observed trying out two different instructional strategies for incorporating computer use into their English classes. Some

had all students working on the same writing assignment, with some students completing the assignment on the computer. Others had groups of students working on different assignments, so that each group had an opportunity to complete each assignment on the computer.

Over the course of the second and third rounds of observations, few technical problems were noted. Again, in those few cases, where a printer, mouse, or terminal was in need of repair, this information was fed back to the DPI and needed support was provided. In all classes, the computers were up and running, and their use appeared to be integrated into the regular class schedule. In most cases, students were using the computer for drafting (usually copying a hand-written assignment) and editing. These observations also indicated that all teachers were focusing their instruction on the writing process, and many teachers were using a mini-lesson format. However, mini-lessons seemed to be less frequently used near the end of the school year.

During these two rounds of observations, most teachers were observed conferencing with individual students, usually for 'discussion' rather than 'evaluation' purposes. However, a few teachers (i.e., teachers with larger classes and/or classes with management problems) reported difficulty in finding time to conference with individual students. In some cases, teachers were also conducting conferences with small groups of students. Again, it was not expected that all students would have reached this stage in the writing process. In many cases students were observed working in pairs or groups at the computer for both problem solving and sharing ideas and writing. In these classes, students seemed to work well together -- and much of this group work seemed to be spontaneous. Overall, teachers continued to monitor and assist students working on their writing

assignments. During later observations, the assistance and monitoring of students working on computers was greatly reduced and provided on an as-needed basis.

During the three follow-up meetings teachers shared their positive experiences and problems with implementing the program; they offered the DPI and RBS recommendations for continuing the Project; and, RBS summarized the observation findings and discussed the evaluation and documentation plans. Several teachers even shared their students' writing and special class writing projects. Teachers informally reported these dinner meetings to be very helpful and welcomed the opportunity to meet and share information with other Project teachers.

Outcome Evaluation Results

Three outcome evaluation questions were specified in the design of the study as described earlier. The findings with respect to each of these are presented below.

Were student writing skills enhanced as a result of participation in the project? Student writing skills were assessed for experimental and control students on a pre- and post-test basis. All pre- and post-writing assessments were sent to an independent third party for scoring. A total of 5,887 papers were scored. The scoring system involved four analytic factors: focus, organization, development, and language conventions. The focus factor was used to assess the clarity and consistency of the main point or subject and its appropriateness to the audience and purpose as specified by the prompt. The organization factor dealt with the clarity and effectiveness of the plan or arrangement of ideas and the use of organizational methods or strategies appropriate to the audience and purpose of the prompt. The development factor involved the elaboration of the main

point or subject using examples, specific details, and supporting information. The conventions factor was used to assess the correct use of standard English including grammar, sentence structure, spelling, punctuation, and capitalization.

The factors were scored on a six-point scale according to separate sets of criteria and recorded as four independent scores plus an equally weighted total score. The six-point scale ranged as follows: (1) seriously deficient, (2) moderately deficient, (3) slightly deficient, (4) moderately proficient, (5) proficient, and (6) exceptionally proficient. Specific criteria for review of each factor are presented in the appendix. All papers were scored by two independent readers, and discrepancies (papers with score differences of more than one point) were scored a third time (adjudicated) by table leaders. Practice sets and validation packs were developed and used for training. Scoring procedures employed initial training, practice sample scoring, validation procedures and consistency checks. Reader reliability checks were made and reports issued beginning with the second day of scoring. Condition codes were recorded in place of scores when one of the following response conditions were encountered during scoring: (A) blank, (B) illegible, (C) off topic, (D) insufficient to score, or (E) predominately in another language.

A final score was arrived at for each of the four factors, and a total score consisting of the sum of the final four factor scores was calculated. In obtaining these scores, certain guidelines were followed. If there were only two readings, the final score was simply the average of the two reading scores. If a third reading was necessary, the final sore was the third reading score. If the same condition code was given for the two reading scores, the condition code was used as the final score. However, if two

different condition codes were given or a numerical code and a condition code were given the final score was the third reading score. The total score was computed as the sum of the four factor scores, with condition codes assigned a value of zero.

Two approaches were used in the analysis of the data on student writing skills. The first involved an analysis of covariance of mean writing post-test scores comparing experimental and control group students across all schools. Table 1 shows the results of this analysis. The second approach analyzed program effects by comparing gains for the experimental and the corresponding control group within each school. The results of this latter approach are shown in Tables 2 - 6. In comparing gains for the experimental and control group within each school, schools not having a control group were evaluated by using the overall control group school mean in place of what would have been the school's control group.

Table 1 shows results of an analysis of covariance of post-test writing assessment scores using the pre-test as a covariate. Separate analyses were conducted for each score. Results show the total number of subjects analyzed (N), the adjusted post-test means for experimental (X) and control (C), the F value (F), and the level of statistical significance obtained (Sig.)

As can be seen in Table 1, the results reflect very favorably on the experimental program. Results of comparisons between experimental and control groups on organization, development, conventions and total scores show statistically significant differences favoring the experimental program. Only the focus score failed to show any significant difference.

An examination of Tables 2 - 6 shows similarly favorable results at the individual school level. Here, in these tables, experimental and control

Table 1

Analysis of Covariance of Post Student Writing Assessment
Using Pretest as the Covariate

Score	N	Adjusted Posttest Mean $\bar{X}$	$\bar{C}$	F	Sig
Total	2285	16.11	15.82	9.34	.002
Focus	2275	4.18	4.15	1.78	NS
Organization	2285	3.93	3.83	13.13	.001
Development	2285	3.97	3.90	4.79	.02
Conventions	2285	4.03	3.96	8.89	.003

Table 2

Writing Assessment Gains By School

(Total Score)

School	Group	N	Pre	Post	Gain	t-sig	Gr. Gain
[A]	X	84	15.80	16.07	.27	NS	X
	C	158	16.10	15.72	- .38	.05	
[B]	X	47	15.17	15.91	.74	.01	X
	C	65	16.24	16.28	.04	NS	
[C]	X	74	13.44	14.47	1.03	.001	X
	C	83	15.28	15.87	.59	----	
[D]	X	81	14.14	15.70	1.56	.001	C
	C	201	14.85	16.48	1.63	.001	
[E]	X	89	13.54	17.18	3.64	.001	X
	C	60	15.63	17.08	1.45	.001	
[F]	X	82	13.41	14.79	1.38	.001	X
	C	81	13.98	14.85	.86	.001	
[G]	X	108	17.05	18.01	.96	.001	X
	C	36	16.05	15.58	- .47	NS	
[H]	X	107	13.36	14.74	1.38	.001	X
	C	83	15.28	15.87	.59	----	
[I]	X	49	17.71	18.98	1.27	.001	X
	C	38	15.91	16.20	.29	NS	
[J]	X	22	14.68	14.41	- .27	NS	C
	C	83	15.28	15.87	.59	----	
[K]	X	89	15.00	14.80	- .20	NS	C
	C	49	14.95	16.20	1.25	.01	
[L]	X	58	16.45	16.89	.44	NS	C
	C	97	15.04	16.30	1.26	.001	
[M]	X	67	16.78	16.87	.08	NS	C
	C	35	15.60	16.11	.51	NS	
[N]	X	98	14.96	15.91	.95	.001	X
	C	17	15.15	15.56	.41	NS	
[O]	X	67	13.44	14.75	1.31	.001	X
	C	141	15.58	15.73	.15	NS	
[P]	X	59	15.09	17.06	1.97	.001	X
	C	107	13.60	14.29	.69	.01	
MEANS	X	74	15.00	16.03	1.03	----	11=X
	C	83	15.28	15.87	.59	----	5=C

Table 3

Writing Assessment Gains By School

(Focus Score)

School	Group	N	Pre	Post	Gain	t-sig	Gr. Gain
[A]	X	84	4.12	4.21	.09	NS	X
	C	158	4.19	4.12	- .07	NS	
[B]	X	47	4.04	4.11	.07	NS	X
	C	65	4.24	4.28	.04	NS	
[C]	X	74	3.58	3.80	.22	.005	X
	C	----	----	----	.18	----	
[D]	X	81	3.76	4.12	.36	.001	C
	C	201	3.90	4.29	.39	.001	
[E]	X	88	3.59	4.44	.85	.001	X
	C	60	4.05	4.50	.45	.001	
[F]	X	82	3.55	3.85	.30	.001	X
	C	81	3.71	3.91	.20	.001	
[G]	X	108	4.41	4.65	.24	.001	X
	C	34	4.26	4.11	.15	NS	
[H]	X	107	3.63	3.86	.23	.001	X
	C	----	----	----	.18	----	
[I]	X	49	4.61	4.86	.25	.05	X
	C	38	4.08	4.11	.03	NS	
[J]	X	22	3.77	3.79	.02	NS	C
	C	----	----	----	.18	----	
[K]	X	89	3.92	3.85	- .07	NS	C
	C	49	3.89	4.22	.33	.01	
[L]	X	57	4.39	4.44	.05	NS	C
	C	96	3.95	4.29	.34	.001	
[M]	X	67	4.40	4.44	.04	NS	C
	C	35	4.03	4.16	.13	NS	
[N]	X	97	3.98	4.09	.11	NS	C
	C	17	3.94	4.09	.15	NS	
[O]	X	67	3.63	3.89	.26	.005	X
	C	141	4.07	4.09	.02	NS	
[P]	X	58	3.98	4.40	.42	.001	X
	C	105	3.62	3.74	.12	NS	
MEANS	X	74			.22	----	10=X
	C	83			.18	----	6=C

Table 4

Writing Assessment Gains By School

(Organization Score)

School	Group	N	Pre	Post	Gain	t-sig	Gr. Gain
[A]	X	84	3.84	3.98	.14	NS	X
	C	158	3.90	3.81	- .09	NS	
[B]	X	47	3.59	3.85	.26	.005	X
	C	65	3.86	3.95	.09	NS	
[C]	X	74	3.28	3.49	.21	.005	X
	C	----	----	----	.17	----	
[D]	X	81	3.36	3.86	.50	.001	X
	C	201	3.59	3.97	.38	.001	
[E]	X	89	3.22	4.27	1.05	.001	X
	C	60	3.82	4.20	.38	.001	
[F]	X	82	3.26	3.59	.33	.001	X
	C	81	3.26	3.58	.32	.001	
[G]	X	108	4.16	4.41	.25	.001	X
	C	36	3.93	3.79	.14	NS	
[H]	X	107	3.18	3.59	.41	.001	X
	C	----	----	----	.17	----	
[I]	X	49	4.29	4.60	.31	.01	X
	C	38	3.87	3.88	.01	NS	
[J]	X	22	3.56	3.45	- .11	NS	C
	C	----	----	----	.17	----	
[K]	X	89	3.63	3.53	- .10	NS	C
	C	49	3.64	3.94	.30	.01	
[L]	X	58	3.97	4.14	.17	.05	C
	C	97	3.69	3.97	.28	.001	
[M]	X	67	4.06	4.10	.04	NS	C
	C	35	3.77	3.90	.13	NS	
[N]	X	98	3.57	3.88	.31	.001	X
	C	17	3.65	3.74	.09	NS	
[O]	X	67	3.17	3.62	.45	.001	X
	C	141	3.77	3.79	.02	NS	
[P]	X	59	3.64	4.17	.53	.001	X
	C	107	3.26	3.46	.20	.005	
MEANS	X	74			.30	-----	12=X
	C	83			.17	-----	4=C

Table 5

Writing Assessment Gains By School

(Development Score)

School	Group	N	Pre	Post	Gain	t-sig	Gr. Gain
[A]	X	84	3.86	3.87	.01	NS	X
	C	158	3.97	3.79	- .18	.01	
[B]	X	47	3.67	3.88	.21	.05	X
	C	65	4.14	3.98	- .16	NS	
[C]	X	74	3.12	3.51	.39	.001	X
	C	----	----	----	.17	----	
[D]	X	81	3.42	3.85	.43	.001	C
	C	201	3.63	4.13	.50	.001	
[E]	X	89	3.07	4.33	1.26	.001	X
	C	60	3.81	4.27	.46	.001	
[F]	X	82	3.25	3.63	.38	.001	X
	C	81	3.49	3.64	.15	.05	
[G]	X	108	4.32	4.52	.20	.005	X
	C	36	4.03	3.86	.17	NS	
[H]	X	107	3.15	3.60	.45	.001	X
	C	----	----	----	.17	----	
[I]	X	49	4.43	4.83	.40	.001	X
	C	38	3.82	4.03	.21	.05	
[J]	X	22	3.72	3.45	- .27	NS	C
	C	----	----	----	.17	----	
[K]	X	89	3.80	3.84	.04	NS	C
	C	49	3.72	4.07	.35	.005	
[L]	X	58	4.12	4.20	.08	NS	C
	C	97	3.75	4.09	.34	.001	
[M]	X	67	4.12	4.06	- .06	NS	C
	C	35	3.89	3.97	.08	NS	
[N]	X	98	3.64	3.90	.26	.005	X
	C	17	3.76	3.76	.00	NS	
[O]	X	67	3.23	3.60	.37	.001	X
	C	141	3.82	3.86	.04	NS	
[P]	X	59	3.64	4.16	.52	.001	X
	C	107	3.32	3.55	.23	.005	
MEANS	X	74			.29	----	11=X
	C	83			.17	----	5=C

Table 6

Writing Assessment Gains By School

(Conventions Score)

School	Group	N	Pre	Post	Gain	t-sig	Gr. Gain
[A]	X	84	3.99	4.02	.03	NS	X
	C	158	4.04	4.01	- .03	NS	
[B]	X	47	3.86	4.06	.20	.01	X
	C	65	3.99	4.06	.07	NS	
[C]	X	74	3.47	3.68	.21	.005	X
	C	----	----	----	.14	----	
[D]	X	81	3.60	3.87	.27	.001	C
	C	201	3.72	4.08	.36	.001	
[E]	X	89	3.66	4.18	.52	.001	X
	C	60	3.95	4.11	.16	.05	
[F]	X	82	3.40	3.73	.33	.001	X
	C	81	3.53	3.72	.19	.005	
[G]	X	108	4.15	4.42	.27	.001	X
	C	36	3.99	3.93	- .06	NS	
[H]	X	107	3.39	3.68	.29	.001	X
	C	----	----	----	.14	----	
[I]	X	49	4.38	4.69	.31	.005	X
	C	38	4.14	4.18	.04	NS	
[J]	X	22	3.61	3.70	.09	NS	C
	C	----	----	----	.14	----	
[K]	X	89	3.80	3.84	.04	NS	C
	C	49	3.69	3.97	.28	.005	
[L]	X	58	4.04	4.18	.14	NS	C
	C	97	3.70	3.97	.27	.001	
[M]	X	67	4.19	4.25	.06	NS	C
	C	35	3.91	4.08	.17	NS	
[N]	X	98	3.78	4.09	.31	.001	X
	C	17	3.79	3.97	.18	NS	
[O]	X	67	3.40	3.62	.22	.005	X
	C	141	3.92	3.98	.06	NS	
[P]	X	59	3.90	4.31	.41	.001	X
	C	107	3.47	3.54	.07	NS	
MEANS	X	74			.23	-----	11=X
	C	83			.14	-----	5=C

groups for each individual school are shown. For each group, the number of subjects (N) with complete pre- and post-test records is shown. Also shown are the mean pre-and post-test score and the gain or difference (Diff) score. The results of a correlated t-test (t-sig) comparing pre- and post-test scores are also represented in terms of the significance level reached. Finally, the group with the greater gain (Gr. Gain) is identified in the final column of the tables. For each score type listed in these tables, the number of cases where experimental school groups gained more than the controls exceeded by a wide margin the number of cases in which the controls outgained the experimentals.

Thus, the weight of evidence indicated by the findings supports the contention that the computer writing program does indeed serve to enhance the writing skills of participating students.

Did students get more enjoyment of writing as a result of participation in the project? Student enjoyment of writing was assessed using a single question on the student attitude survey administered to both experimental and control groups on a pre- and post-test basis. The question content and analysis results are given below.

Question: Do you enjoy working on writing assignments?

1. Almost Always
2. Often
3. Sometimes
4. Rarely
5. Never

Group	N	Pre	Post	Diff	t-sig	Gr. Gain
X	1119	2.90	2.67	- .23	.001	X
C	1099	3.07	3.08	+ .01	NS	

Since the response scale for the item is arranged from "1 = Almost Always" to "5 = Never," movement from a higher pre-test mean to a lower

post-test mean is interpreted to be a more favorable response (i.e., a gain in enjoyment). As can be seen by the results, only the experimental group gained in its enjoyment of writing from the beginning to the end of the academic year, and this gain was substantial as well as being statistically significant. On-site observations and discussions with teachers and students at the experimental group sites also confirmed that experimental students gained in their enjoyment of the writing process.

Did students enjoy using the computer for learning and practicing writing skills? Student enjoyment of use of the computer for learning and practicing writing skills was also assessed using a single item on the student survey. The survey question and the results for experimental and control groups are presented below.

Question: Do you enjoy using a computer for writing?

1. Almost Always
2. Often
3. Sometimes
4. Rarely
5. Never

Group	N	Pre	Post	Diff	t-sig	Gr. Gain
X	1113	2.39	1.70	- .69	.001	X
C	1095	2.78	2.66	- .12	.01	

The response scale ranges from a "1 = Almost Always" to a "5 = Never", and thus changes in the direction of more enjoyment from pre- to post-test would result in a negative difference score. The magnitude of the negative difference score would indicate the extent of the more favorable change experienced.

As can be seen by the above results, the experimental program group shows a gain in enjoyment of computer use for learning and practicing writing skills. The gain is also more than five times that of the control

group. This is to be expected since the exposure of the control group students to computers for use in writing on a formal basis was to have been of a limited nature.

It is clear, then, that the experimental program group enjoyed using the computers. On-site observations and discussions with teachers and students served to confirm this finding as well.

Conclusions and Implications

Based on the first-year evaluation study of the computer writing program, several conclusions can be drawn. They are as follows:

1. In general, adequate orientation and training were provided to the participating schools as well as help in selecting and acquiring computer hardware and software.

2. Most program sites started on time and implemented the program as planned.

3. Despite all efforts, a few of the schools did not take advantage of the special training opportunities and technical assistance services and, in some cases, struggled somewhat during implementation as a consequence.

4. On-site visitation and monitoring of the first year of implementation of a computer writing program is essential to its success.

5. Student writing skills are enhanced through use of computers within the context of a process approach to writing.

6. Students enjoy writing more when using computers in conjunction with their normal writing instruction program.

7. Students enjoy using the computer for learning and practicing their writing skills.

8. Teachers enjoy using the computer for writing instruction.

This study has provided an opportunity to assess the effectiveness of a program designed to introduce computers into the English/Language Arts classroom to assist in the teaching of the writing process. The findings

are quite favorable to the program, especially in light of the fact that this was its first year of implementation. Despite these initially positive findings, several questions remain for further study:

- What is the maximum potential level of effectiveness of the program once implementation problems have been overcome and program operations have stabilized?
- What variables mitigate against successful implementation and stabilization of the program?
- In what ways do teachers alter their instructional styles to accommodate the use of computers in the classroom? What seems to work best? What doesn't?
- In what ways do students alter their learning styles to accommodate the use of computers for learning in the classroom? What seems to work best? What doesn't?

The present time represents a critical period for continued study of the computer writing program. It is a window of opportunity which may not be open very long. During the current year of study, it was possible to employ a stringent experimental design by obtaining comparable control groups of students that could be expected to have limited exposure to computer-assisted instruction. As schools purchase additional computers, this will become less feasible and will increase threats to internal validity in the evaluative research design. It is recommended, therefore, that if continued study is to be undertaken on this program, that it be carried out during the upcoming school year, so that more definitive results can be gathered over a two-year period of program operation. The two-year findings could then serve as a relatively firm foundation for state- and local-level policy decisions regarding the future course of computer-assisted instruction in Delaware.

Appendix

APPENDIX: PROJECT DOCUMENTS AND DATA COLLECTION INSTRUMENTS

Memorandum of Agreement

Schedule of Activities for Delaware Middle School Writing Project

Guidelines for Selection of Control or Comparison Group

Agenda for April 17, 1989 and May 15, 1989 Orientation Sessions

Readiness Checklist for Participation in the Middle School Computer-Assisted Writing Project

Teacher Inservice Evaluation Form

School Hardware/Software Decisions Form

Telephone Readiness Checklist

Software Training Evaluation Form

Classroom Observation Form

Teacher Log

Writing Assessment and Scoring Procedures

Pre-Writing Assessment, Student Survey #1, Instructions; Post-Writing Assessment, Student Survey #2, Instructions

Using Computer Technology in Support of Student Writing: A Resource Book

MEMORANDUM OF AGREEMENT

TO: Mr. Sidney B. Collison
Deputy State Superintendent
Instructional Services Branch

SUBJECT: MIDDLE LEVEL EDUCATION PROGRAM FOR WRITING

The _____ School District hereby agrees to participate in the project to improve the writing skills of students in all of the following ways:

1. An English teacher will be named by the district to staff the designated middle school (grades 7 or 8) classroom.

2. The English teacher will be made available for the scheduled training (two days) in the use of computers and related software.

3. At least six computers, one printer, selected software and supplies will be purchased and installed in the designated classroom.

4. The computers will be housed in a secure area and will be maintained in order to keep them operative.

5. The computers will be used exclusively for teaching the writing process and for related word processing activities.

6. Representatives from the Department of Public Instruction and from Research for Better Schools will be permitted to visit the designated classroom and to work with the assigned teacher in the implementation and evaluation of the program.

7. The district will be responsible for the expenses associated with the preparation of the designated classroom in order to achieve the appropriate computer configuration.

Signed _____
Superintendent

On this _____ day of _____ in the year 1989.

Return to: Dr. Gary L. Houpt
State Supervisor
English Language Arts
Department of Public Instruction
Townsend Building
P. O. Box 1402
Dover, DE 19903

Schedule of Activities for Delaware Middle School Writing Project

	1989									1990							
Training of Participants	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A
• Orientation for teachers	•	•																
• Orientation for administrators			•															
• Software training sessions			•	•	•	•												
• Writing process course						•	•											
Selection of Hardware and Software	•	•																
Implementation of Writing Instruction							•	•	•	•	•	•	•	•	•			
Evaluation of Project																		
• Identify control group							•											
• Collect writing samples							•								•			
• Observe writing classes							•	•	•	•	•	•	•	•	•			
• Analyze data																•	•	
• Prepare evaluation report																	•	•

Guidelines for Selecting a Control or Comparison Group

An appropriate Control Group should be as similar as possible to the group participating in the Computer Writing Project. This would include variables such as type of students, demographic variables (Grade, Age, Sex, Race), and achievement level. In the ideal situation, the only difference between the two groups would be that the Project students use the computer for writing. The most appropriate Control Groups for the Middle School Writing Project are:

- other classes in the same grade taught by the Project teacher, but not using the computer for writing
- other classes in the same grade at the same school, not taught by the Project teacher, and not using the computer for writing
- other classes in the same grade at a different school, not using the computer for writing.

WORKSHOP FOR DELAWARE MIDDLE SCHOOL WRITING PROJECT

Date: April 17, 1989

Presenters: Gary Houpt, DPI
Ronald Houston, RBS
Russ Dusewicz, RBS
Colleen Wozniak, DPI
Carol Kopay, Milford School District
Joanne Silvestri, Apple Computers
Christine Olson, IBM

Materials and Handouts:

- Videotape - The Writing Center, Central Hower High School, Akron Public Schools - February 1987
- Resource Book: **Using Computer Technology in Support of Student Writing**

Objectives:

Participants will be able to:

- describe the Project purpose, plans, participant requirements and documentation procedure;
- list findings from research studies that support the use of computers to assist writing instruction;
- describe how the computer may assist writing instruction;
- describe a model program using computers to assist writing instruction; and
- identify several computers listing attributes that support their use in the writing classroom.

Activities:

9:00-9:45 Presentation of Project: The presenter will describe the project purpose, plans and school requirements. A second presenter will describe two research articles that support the use of computers for writing instruction.

9:45-10:15 Discussion of Participant Experiences and Expectations: The participants will describe experiences using the computer and their expectations for the project.

10:15-10:45 Discussion of Documentation Plan: The presenter will administer a checklist of project requirements, present documentation plans and begin the documentation activity.

10:45-10:55 BREAK

10:55-11:40 Presentation of Model Writing Classroom: This activity will be conducted in two parts: 1. The presenter will show a videotape, prepared by Apple Computers, that presents a classroom of students who are learning to write using the computer; 2. The presenter (classroom teacher) will describe, using a computer, her experiences teaching writing to middle school students.

11:40-12:00 Overview of Participant Inservice or Staff Development Activities: The presenter will describe activities designed to prepare project participants to implement the computer assisted writing instruction. A resource document which will be the primary training material will also be described.

12:00-1:00 LUNCH

1:00-3:00 Hardware Demonstration: Presenters (IBM & Apple) will demonstrate computers describing how they may lend themselves to assist writing instruction in the middle school classroom.

Discussion:

3:00-4:00 Participants will be given an opportunity to ask questions, make comments and recommend changes in the project.

Workshop

Delaware Middle School Writing Project

May 15, 1989

Overview of activities	Gary Houpt
Review of project timeline and evaluation	Ron Houston Russ Dusewicz
Presentation - Using Computer Technology in Support of Student Writing	Gary Houpt
Presentation - Techniques for managing computers in the classroom	Patricia Masten
Presentation - Overview of writing software	Ron Houston
LUNCH	
Presentation - Wasatch writing program	Adrian Binns Maureen Kerr
Software review (hands on activity)	Christine Olson Joanne Silvestri
Questions	Gary Houpt
Announcements	Gary Houpt

READINESS CHECKLIST FOR PARTICIPATION IN THE
MIDDLE SCHOOL COMPUTER-ASSISTED WRITING PROJECT

SUMMARY OF RESULTS (N=16)

Mean		Strongly Agree				Strongly Disagree
		5	4	3	2	1
4.6	1. District/school leadership are committed to improving the performance of their middle school writing programs.	5	4	3	2	1
4.3	2. District/school leadership believe that computer technology may help teachers improve student writing.	5	4	3	2	1
	3. The middle school language arts teacher selected to participate in the writing project:					
4.9	• is committed to teaching writing as a process	5	4	3	2	1
4.0	• has participated in a writing workshop that involved him/her in the writing process and in considering the implications of that experience for writing instruction	5	4	3	2	1
2.3	• uses a computer in personal writing tasks.	5	4	3	2	1
	4. District/school leadership will provide the teacher with sufficient time to:					
4.1	• preview and select software that may help students with the writing process	5	4	3	2	1
4.1	• develop plans for how to prepare students to use the selected software	5	4	3	2	1
4.1	• develop with school leadership plans for how students will get the opportunity to use computers both during and outside of class time.	5	4	3	2	1

Mean		Strongly Agree				Strongly Disagree
		5	4	3	2	1
	5. The teacher, with the assistance of district/school leadership, will develop the kind of project plan that satisfactorily sets forth:					
4.7	• their project objectives	5	4	3	2	1
4.8	• the activities that teachers and students will engage in to achieve those objectives	5	4	3	2	1
.7	• a schedule for those activities.	5	4	3	2	1
	6. District/school leadership and participating teachers are totally committed to providing all the necessary information for the project evaluation. More specifically, this includes:					
4.8	• maintaining teacher and student logs	5	4	3	2	1
4.8	• completing periodic teacher and student questionnaires	5	4	3	2	1
4.8	• maintaining folders of student writing	5	4	3	2	1
4.5	• establishing a control group.	5	4	3	2	1

Teacher Inservice Evaluation Form

SUMMARY OF RESULTS (N=13)

Mean		Strongly Agree				Strongly Disagree
	Project Orientation					
4.5	1. The objectives of the Writing Project and the Project timeline are clear.	5	4	3	2	1
4.5	2. My role and responsibilities in the Project are clear.	5	4	3	2	1
4.7	3. There was adequate time in each session for discussion and questions.	5	4	3	2	1
	Implementation Readiness					
4.6	4. I am aware of a framework which describes writing as a four-stage process.	5	4	3	2	1
4.7	5. I am aware of how the computer may assist students working through this writing process.	5	4	3	2	1
4.2	6. I have an understanding of how the computer will be integrated into my classroom instruction.	5	4	3	2	1
4.5	7. I am exploring, with administrators in my district, the hardware and software options available to me.	5	4	3	2	1
3.3	8. I feel able to contribute to the decision of selecting the hardware for the Project.	5	4	3	2	1
3.5	9. I feel able to contribute to the decision of selecting the software for the Project.	5	4	3	2	1
4.3	10. The timeline for Project activities (training, hardware/software selection, implementation) is feasible.	5	4	3	2	1
	Training Readiness					
4.0	11. I will need further training on the hardware.	5	4	3	2	1
4.1	12. I will need further training on the software.	5	4	3	2	1
2.9	13. I will need further training on the writing process.	5	4	3	2	1

Additional Concerns/Suggestions (use back of page for response):

DELAWARE MIDDLE SCHOOL WRITING PROJECT
School Hardware/Software Decisions

Please complete the following and return to **Gary Houpt on or before June 1 at the following address: Delaware Department of Public Instruction, Townsend Building, P.O. Box 1402, Dover, DE 19901.

Administrator: _____
Teacher : _____
School : _____
Phone : (_____) _____ Date: _____

1. Our school has decided to purchase the following computer hardware to support our implementation of the Writing Project:

Number:	Hardware Type (Model Name):	Manufacturer:

2. Our school has decided to purchase the following computer software to support our implementation of the Writing Project:

Number:	Software Package Name	Software Developer:

3. Will the hardware and software purchased for this project be networked at this time?

_____Yes _____No

4. On what aspects of the project does the teacher need training, and what will be the source of training to meet these needs?

	Training Needed		Source of Training			
	Yes	No	DPI	District	Both	Neither
a. computer hardware	____	____	____	____	____	____
b. computer software	____	____	____	____	____	____
c. writing process	____	____	____	____	____	____

5. Will the teacher be available to participate in the writing process inservice ("Teachers Teaching Writing") scheduled for **August 21-25**?

_____Yes _____No

If no, will the teacher be attending any other writing process inservice sessions?

_____Yes _____No

DELAWARE MIDDLE SCHOOL WRITING PROJECT

Telephone Readiness Checklist (2)

Principal:_____ Date:_____

School:_____ District:_____

Project Teacher:_____

Training	Yes	No	Other
1. Did the Project teacher receive enough training on using the computer hardware? hardware selected_____	___	___	
2. Did he/she receive enough training on using the computer software? software selected_____	___	___	
3. Did he/she receive enough training on teaching the writing process?	___	___	
Implementation Readiness			
4. Did you receive all of the hardware ordered for the Project?	___	___	
5. Is the hardware set-up, tested, and ready to use?	___	___	
6. Did you receive all of the software ordered for the Project?	___	___	
&. Is the software set-up, tested, and ready to use?	___	___	
Tryout			
9. Has the Project teacher had the opportunity to personally tryout the hardware?	___	___	
10. Has he/she had the opportunity to personally tryout the software?	___	___	
Comparison Group			
11. Has a comparison (control) group been selected? If yes, type:_____ _____ _____	___	___	

Program Plan	Yes	No	Other
12. Is there a "program plan" for implementing the Project?	___	___	
If yes, does the plan address:			
a. classroom management?	___	___	
b. time on writing instruction?	___	___	
c. time using computers?	___	___	
d. how computers will be used?	___	___	
e. how to insure equal computer use for all students?	___	___	

Program Start-Up

13. What is the start-up date for implementing the program? _____

_____

_____

14. When will the pre-writing assessment be administered to the Project class(es)? _____

_____

_____

15. When will the pre-writing assessment be administered to the comparison (control) group(s)? _____

_____

_____

Comments/Concerns

16.

DELAWARE MIDDLE SCHOOL WRITING PROJECT
Software Training Evaluation Form

Name:_____ Date:_____

School:_____ District:_____

Software Package(s) Name:_____

Directions: The following items relate to the hardware and software package(s) you selected and were trained on for the Delaware Middle School Writing Project. Please circle the number that most closely matches your response.

Mean		Strongly Agree				Strongly Disagree	
	Software Training						
4.2	1. There was adequate time for practice in using the software.	5	4	3	2	1	
4.3	2. There was adequate time for discussion and questions.	5	4	3	2	1	
4.6	3. The presenter was knowledgeable and interesting.	5	4	3	2	1	
4.6	4. The sessions provided me with the support I needed on using the hardware/software.	5	4	3	2	1	
4.0	5. The capability and features of the soft-program(s) were clearly presented.	5	4	3	2	1	
	Implementation Readiness						
	I understand how the software program(s) can be used to help students with:						
4.0	6. the prewriting or planning stage	5	4	3	2	1	*N/A
4.4	7. the writing or drafting stage	5	4	3	2	1	N/A
4.4	8. the revising or rewriting stage	5	4	3	2	1	N/A
	I am able to use the main features of the software program(s) that relate to:						
3.9	9. the prewriting or planning stage	5	4	3	2	1	N/A
4.4	10. the writing or drafting stage	5	4	3	2	1	N/A
4.2	11. the revising or rewriting stage	5	4	3	2	1	N/A
4.3	12. I feel that I selected the best available software package(s) for this Project.	5	4	3	2	1	
3.8	13. I am ready to train students in using this software.	5	4	3	2	1	
4.1	14. I understand how to integrate this software into my lesson plans for teaching writing.	5	4	3	2	1	
3.4	15. I understand how to manage a classroom environment which has computers.	5	4	3	2	1	

Additional Concerns/Suggestions (use back of page for response)

*not applicable because received no training

DELAWARE MIDDLE SCHOOL WRITING PROJECT
Classroom Observation Form

District:_____ School:_____

Teacher:_____ Grade:_____ Subject:_____

Observer:_____ Date:_____ Time:_____ to _____

Please indicate whether or not you observe the followng:

	Observed
A. THE TEACHING OF WRITING AS A PROCESS	_____
Pre-Writing	
1. Selecting and limiting a subject.	_____
2. Developing preliminary outline (generating ideas).	_____
3. Developing a thesis statement.	_____
4. Developing a complete outline (organizing).	_____
Drafting	
5. Selecting an opening statement.	_____
6. Writing a first draft.	_____
Revising	
7. Revising drafts.	_____
8. Preparing final copy.	_____
9. Other_____	
_____	
B. MINI-LESSONS	_____
Pre-Writing	
1. Selecting and limiting a subject.	_____
2. Developing preliminary outline (generating ideas).	_____
3. Developing a thesis statement.	_____
4. Developing a complete outline (organizing).	_____
Drafting	
5. Selecting an opening statement.	_____
6. Writing a first draft.	_____
Revising	
7. Revising drafts.	_____
8. Preparing final copy.	_____
9. Other_____	
_____	
C. COMPUTER USE	_____
1. Adequate schedule posted.	_____
2. Time per student per week. (posted/from teacher)	_____ minutes
3. Number of computers available.	_____ computers
4. Number of different students observed using computers.	_____ students
5. Number of computers observed <u>not</u> in use.	_____ computers
6. Average time per student on computer.	_____ minutes

D. STUDENT CONFERENCING

Observed ____

1. Small Group		No. of Students Per Group	No. of Students (Total)	Time Per Group	Time (Total)
No. of Groups -- Discussion	____	____	____	____	____
No. of Groups -- Evaluation	____	____	____	____	____

2. One-on-One		Time Per Student	Time (Total)
No. of Students -- Discussion	____	____	____
No. of Students -- Evaluation	____	____	____

E. MONITORING

	To a Great Extent				Not At All
1. To what extent did the teacher provide individual monitoring and assistance to students working on the computer?	5	4	3	2	1
2. To what extent did the teacher provide individual monitoring and assistance to students working on writing assignments?	5	4	3	2	1

F. ADDITIONAL OBSERVATIONS/COMMENTS

DELAWARE MIDDLE SCHOOL WRITING PROJECT

Teacher Log

District:_____ School:_____

Teacher:_____ Grade:_____ Class:_____

Directions: Please keep a separate Log for each of your writing classes for the 1989-1990 school year. Following each writing period, enter four types of information on the Log, as follows:

1) enter the date,

2) check off any mini-lesson topics presented that day (write in the topic if it is not listed on the form),

3) if conferencing occurred that day, indicate the approximate number of groups participating in small-group conferencing **and** the approximate number of individual students participating in one-on-one (individual) conferencing, and

4) in the "monitoring" column, for that day, indicate the approximate number of students using computers **and** the approximate number of these students using computers whose work you monitored (i.e., checked and assisted).

DELAWARE MIDDLE SCHOOL WRITING PROJECT - TEACHER LOG

DATE	MINI-LESSON TOPIC												CONFERENCING		MONITORING	
	1. Selecting & limiting a subject.	2. Developing preliminary outline (generating ideas).	3. Developing thesis statement.	4. Developing complete outline (organizing).	5. Selecting opening statement.	6. Writing first draft.	7. Revising drafts.	8. Preparing final copy.	9. Other	10.	11.	12.	SMALL GROUP (No. of groups)	INDIVIDUAL (No. of students)	NO. OF STUDENTS USING COMPUTERS	NO. OF STUDENTS MONITORED USING COMPUTERS

DELAWARE COMPUTER WRITING PROJECT
WRITING ASSESSMENT AND SCORING PROCEDURES

RESEARCH FOR BETTER SCHOOLS
444 North Third Street
Philadelphia, PA 19123

GENERAL APPROACH

The Delaware Computer Writing Project is attempting to improve the writing skills of Delaware Middle School students through use of computer assisted instruction in the teaching of the writing process. While this project is only in its first year of implementation at a middle school in every district within Delaware, its ultimate effectiveness lies with its longer-term impact upon the writing skills of the students participating in the program. It is for this reason that the principal evaluative tool for assessing the effectiveness of the project consists of an assessment of student writing skills.

For this purpose, a pre- and post-test of writing skills for students participating in the computer writing program (the program group) as well as students participating in comparison classes (the control group) is being conducted. An analysis of gains achieved by the program group relevent to the comparison group will indicate the extent of the effectiveness of the computer writing program during its first year of implementation.

INSTRUMENTATION

Instrumentation used for assessing writing depends directly upon the type of philosophy one chooses to favor with respect to the assessment of writing proficiency. Two primary approaches are considered feasible for such an assessment: The direct method and the indirect method. The direct method involves collecting actual samples of student writing and making judgements about proficiency. The indirect method utilizes objective tests to infer writing proficiency. While past research has shown relatively strong correlations between these different types of assessments, there are distinct practical advantages and disadvantages associated with each. A comparison of the advantages and disadvantages of both types of assessment is presented below.

Direct Assessment

Advantages

- Higher fidelity and face validity of the exercise and response.
- More extensive information provided on writing proficiency.
- Higher relevance to real world writing. tasks.
- Lower test development costs.

Disadvantages

- Higher scoring costs.
- Lower uniformity amongst students on proficiencies.

Indirect Assessment

Advantages

- Higher reliability of scores.
- Higher control over the skills tested.
- Lower test scoring costs.

Disadvantages

- Lower face validity.
- Lower relevance to real world writing tasks.
- Higher emphasis on student reading versus writing proficiency.

Based on time and cost constraints, recent trends in approaches to writing assessment, and strong preferences toward relevancy of the assessment, the direct approach to assessing writing proficiency was selected for use in evaluating the computer writing project.

Having decided on the general approach to the writing proficiency assessment, the next decision, concerned the type of writing to be assessed. This could include: Description, narration, exposition, or reporting. Different exercises and requirements involved in writing an editorial, business letter, personal letter, or an analysis of some event could be called for in the assessment. After careful consideration of all the options, the decision was made to utilize a single topic or prompt. This prompt was to limit student dependence upon actual facts to write a response.

It was also to involve a topic interesting and familiar enough to the student to motivate a full and interesting response. In addition, because of

the limited amount of time (too short to allow for pre-testing of the topic or prompt), a prompt similar to one already tested in a prior statewide administration was utilized for the pre-test, with a variant of this prompt for post test assessment.

SCORING

There are a number of different options that could be used for scoring of actual writing samples. Each method, in turn, has its own advantages and disadvantages. A relative comparison of the advantages and disadvantages of five major scoring methods is given in the table on the following page. These methods are: holistic, analytical, primary trait, writing mechanics, and T-unit analysis.

Because of the relatively large sample involved in the statewide assessment of the computer writing project, the primary methods considered for scoring of this assessment were the holistic and a modified analytical.

Analytical scoring examines individual traits considered important to any piece of writing in any context. The traits under consideration for present purposes include the following:

- Organization - response should have a focus and be carefully organized with a beginning, middle, and end. In addition, there should be a clear plan or strategy that is controlled. Although there may be a minor lapse or two, the response should progress logically from the opening statement to the closing statement.

- Supporting detail- the response should fully accomplish the purpose by providing relevant reasons and explanations, as requested in the composition topic. In addition, some of the details must be elaborated or most of them extended.

- Mechanics/Usage- the writer should demonstrate understanding of the rules of standard edited American English. In other words, the rules for sentence formation, punctuation, capitalization, spelling, and word choice should be consistently applied. In addition, the language should be generally varied. There may be minor errors in some of these papers.

Holistic scoring involves quickly reading a paper for an overview or "whole" impression and balancing all features rather than addressing specific traits. The scoring is specific to the writing samples being evaluated. A four, six, or eight point scale will be developed based upon the range of effectiveness reflected in the set of writing samples. Student papers typical of each of the score levels (i.e., anchor papers, benchmark papers, range finders) will be identified and used as models in assigning scores. As with all methods of rating writing samples, raters must be carefully trained. Raters must be experienced in language arts, and practiced in grading student papers at the middle school level. Initial training for raters will consist of approximately a half day with follow-up sessions during the course of scoring.

The first step in scoring occurs prior to actual scoring. At this point a group of the most experienced raters review a sub-set of papers to identify "range-finders". Range-finders are papers that are representative of all the papers at a given scoring level. For a four-point scoring scale, there would be four range-finders, one at each level. For an eight-point scoring scale, there would likewise be eight range finders. The range finders would be used in training and later as models to assist in scoring. There will be two range finders located for each level of scoring. Past experience with the holistic approach has indicated that it quickly produces consistency among raters. Inter-rater reliability generally has been found to run between .60 and .80 across a number of studies. All papers will be read by two raters. Past research has shown that increasing the number of raters beyond two does not appear to appreciably enhance reliability. Differences between the raters by more than a point will be resolved by an adjudication procedure involving a third reader. It can be expected on the basis of past experience with holistic scoring that an average of thirty to forty papers can be read by an experienced rater each hour, and that six hours of scoring a day should be considered the maximum workload.

To operationalize the scoring for purposes of the Delaware Computer Writing Project, all pre- and post-writing samples will be examined for complete pre- and post-test pairs. Only those with complete pre and post test pairs will be approved for scoring. Once the sample has been reduced to complete pre and post-test pairs, all writing samples for program and comparison groups will be coded on both cover sheets and composition sheets with the same numerical code.

This numerical code will distinguish pre-test from post-test, but will be embedded in a larger numerical code which will provide randomly generated numbers to make pre-tests indistinguishable from post-tests to the raters. Thus, raters will not be able to tell pre-tests from post tests during their reading and rating of the writing samples.

Demographic information on the program group will be analyzed and descriptive statistics computed based on the cover sheets. Sampling of the comparison group will be accomplished by randomly casting out subjects in order to achieve a relative match between the comparison and the program group on the significant demographic variables. The resulting sample will be subjected to rating by a trained cadres of raters. The scoring will be done in May or June of 1990.

Raters will be drawn from a list compiled a few years ago by the DPI. The persons on this list have already been trained and utilized in connection with a previous writing sample. The most consistent and experienced of those raters will be enlisted to take part in the current scoring effort. They will receive a half day of training followed by scoring sessions at a time and place to be specified at a later date. Procedures for assigning papers for scoring, for adjudicating differences in scores, and for reassigning papers will also need to be developed. Once scoring is completed, scores will be recorded for each of the I.D. numbers identifying the pre- and post-test for each student. These will be coded and entered into the RBS computer system where they will be matched with the demographic information already on file. Comparisons will then be made between the results of the program and control groups within and across districts in order to infer program effects attributable to the Computer Writing Project.

PROJECTED COSTS

Any projection of costs for scoring and associated training is understandably only an estimate at this point in time. Given that, the following is the best estimate for the costs of scoring that will be incurred in May or June of 1990.

Approximately 4,000 pre-tests were sent out to schools in early September. Of these 4,000 pre-tests it is estimated that approximately 2,000 were program students and 2,000 were comparison students. If we assume, for one reason or another, that complete pre-and post-test scores will be obtainable for the total program group and the total comparison group of students, then the total pre-test sample and post-test sample will equal 4,000 each for a total of 8,000 writing samples to be scored.

If we begin with a total of 8,000 writing samples, and multiply that figure by two readings each, this yields a total of 16,000 readings. If we then multiply this figure by 1.2, supplementing this figure by the estimated number of third readings needed in cases where adjudication is required, then the total yields 19,200 total readings required for scoring. If we then divide this total by 30 readings per hour, it gives us a total of 640 hours required. Thus a total of 640 hours is needed for scoring the 19,200 writing samples.

If we assume that we will also need three chairpersons or table leaders, that will work at a pace of 4 hours of reading per day plus two hours of anchoring, then the number of person-days required for scoring can be computed. This figure will be 80 person-days for readers plus the time required for the table leaders. If we further assume that the scoring is to be done in a one-week period, including a day of training, then we will need 80 / 4 = 20 readers plus 3 table leaders for scoring, or 23 persons totals for the one-week period. If we compute the cost of a person day at an average of $110 per person (based on substitute costs) x 23 persons x 5 days, then the total cost of scoring would be about $12,650 plus travel, subsistence, and lodging if necessary. Additional costs may be associated with training and support during the scoring if outside assistance other than DPI is needed.

These cost estimates represent our best projection at the present time given the above sample sizes, without pilot testing the reading and scoring process with actual writing samples, and without knowing who might be available from the prior list of experienced raters DPI used in the past. Refinements in these cost estimates will occur as further progress is made in planning for the scoring session.

DELAWARE MIDDLE SCHOOL WRITING PROJECT

PRE-WRITING ASSESSMENT

Student Name:_____ Date:_____

Grade:_____ Age:_____ Sex:(check one)____Male ____Female

Ethnic Group:(check one) ____Asian ____Black ____Hispanic

____White ____Other

School Name:_____ District:_____

Teacher:_____

DIRECTIONS FOR STUDENTS

Your assignment during this class is to write a composition. The topic for the composition is on the next page (page 2). Space is provided to plan or outline ideas for your composition. Your plan will not be scored.

When you finish your plan, read it over and then write your composition on the lined paper attached to these directions. You may use handwriting or printing when you write your composition. Be sure to write clearly so your work can be read easily. Only the composition on the lined paper will be scored.

On pages 5 and 6 you will find a student survey. When you finish working on the composition, mark your answers to the questions on the student survey.

Now turn the page and begin.

COMPOSITION TOPIC 1

Think about ONE change that you would like to make in your school and why you would like to make that change. Write a composition discussing that change. Give reasons why the change should be made, and explain how the change would benefit the school. Remember that you are to write about only ONE change.

(You may use the space below to plan or outline ideas for your composition. The plan or outline will <u>not</u> be scored.)

COMPOSITION 1

(Write your final copy of the composition on the lines below.)

IF YOU NEED MORE SPACE, CONTINUE ON THE NEXT PAGE.

STUDENT SURVEY #1

Name: _____

School: _____ Teacher: _____

Directions: The questions below are about your writing experiences. Read each question carefully and then fill in the circle next to the best answer. Remember to fill in only one circle for each question.

1. When I write something for school, I think the way I write is:
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

2. When I write something for school, teachers usually grade the way I write as:
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

3. How often do you use a computer at home for writing?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

4. Last year, how often did you use a computer at school for writing?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

5. How would you rate your typing or keyboarding ability?
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

6. When you have a writing assignment, how often do you plan what you're going to write and how you're going to write it?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

PLEASE CONTINUE ON NEXT PAGE...

7. When a writing assignment is returned, do teachers require you to work on the paper again to improve it?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

8. Do you enjoy working on writing assignments?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

9. How often are you required to write a paragraph or more in your school assignments?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

10. Do you enjoy using a computer for writing?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o I Haven't Used a Computer for Writing

11. Do you have a computer at home?
   - o Yes
   - o No

Thank you.

DELAWARE MIDDLE SCHOOL WRITING PROJECT

PRE-WRITING ASSESSMENT

Instructions

Enclosed are copies of the Pre-Writing Assesment to be administered to all students participating in the Computer Writing Project and to students in the Comparison Groups (in most cases, the comparison groups will include all other classes in the same grade not using the computer for writing). The assessment consists of a short (maximum 2 pages) composition followed by 11 multiple choice items. It should be administered to the Project and Comparison Groups during the same week of school, just prior to the start of the Project. Students should be given one class period to complete the assessment. The teacher should instruct students to complete the identifying information, read the directions, and then answer all student questions prior to their beginning work.

When completed, assessments should be placed in the enclosed envelope(s) or box and returned for scoring to Research for Better Schools. Trained scorers will be reviewing and scoring the assessments in the Spring, following the administration of the Post-Writing Assessment. The Post-Writing Assessment will be similarly administered, but will require a composition addressing a different topic. The results of the assessments will be confidential and the data will be reported in aggregate form in a final Project report. Individual classes will not be identified. This report will be made available to all participants.

If you have any questions, please call Dr. Francine Beyer or Dr. Russell Dusewicz at Research for Better Schools (215-574-9300).

DELAWARE MIDDLE SCHOOL WRITING PROJECT

POST-WRITING ASSESSMENT

Student Name:_____ Date:_____

Grade:_____ Age:_____ Sex:(check one)___Male ___Female

Race:(check one)___Asian American ___Black ___Hispanic ___White ___Other

School Name:_____ District:_____

Teacher:_____

DIRECTIONS FOR STUDENTS

Your assignment during this class is to write a composition. The topic for the composition is on the next page. Space is provided to plan or outline ideas for your composition. Your plan will **not** be scored.

When you finish your plan, read it over and then write your composition on the lined paper attached to these directions. You may use handwriting or printing when you write your composition. Be sure to write **clearly** so your work can be read easily. Only the composition on the **lined** paper will be scored.

When you finish working on the composition, mark your answers to the questions on the student survey.

Now turn the page and begin.

COMPOSITION TOPIC 2

Think about one change that you would like to make in the town or city in which you live and why you would like to make that change. Write a composition discussing that change. Give reasons why the change should be made, and explain how the change would benefit your town or city. Remember that you are to write about only ONE change.

(You may use the space below to plan or outline ideas for your composition. The plan or outline will <u>not</u> be scored.)

COMPOSITION 2

(Write your final copy of the composition on the lines below.)

IF YOU NEED MORE SPACE, CONTINUE ON THE NEXT PAGE.

STUDENT SURVEY #2

Name: _____

School: _____ Teacher: _____

Directions: The questions below are about your writing experiences. Read each question carefully and then fill in the circle next to the **best** answer. Remember to fill in only **one** circle for each question.

1. When I write something for school, I think the way I write is:
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

2. When I write something for school, teachers usually grade the way I write as:
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

3. How often do you use a computer at home for writing?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

4. This year, how often did you use a computer at school for writing?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

5. How would you rate your typing or keyboarding ability?
   - o Very Good
   - o Good
   - o Fair
   - o Poor
   - o Very Poor

6. When you have a writing assignment, how often do you plan what you're going to write and how you're going to write it?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

PLEASE CONTINUE ON NEXT PAGE....

7. When a writing assignment is returned, do teachers require you to work on the paper again to improve it?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

8. Do you enjoy working on writing assignments?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o Almost Never

9. How often are you required to write a paragraph or more in your school assignments?
   - o At Least Once a Day
   - o At Least Once a Week
   - o About Once a Month
   - o Only Once or Twice a Year
   - o Never

10. Do you enjoy using a computer for writing?
   - o Almost Always
   - o Often
   - o Sometimes
   - o Rarely
   - o I Haven't Used a Computer for Writing

11. Do you have a computer at home?
   - o No
   - o Yes

DELAWARE MIDDLE SCHOOL WRITING PROJECT

POST-WRITING ASSESSMENT

Instructions

Enclosed are copies of the Post-Writing Assesment to be administered to all students who were administered the Pre-Writing Assessment last Fall. This includes students participating in the Computer Writing Project and those students not using the computer for writing who have been selected to serve as a Comparison Group. The assessment consists of a short (maximum 2 pages) composition followed by 11 multiple choice items. It should be administered to the Project and Comparison Groups during the same week of school, at the end of May. Students should be given one class period to complete the assessment. The teacher should instruct students to complete the identifying information, read the directions, and then answer all student questions prior to their beginning work.

When completed, assessments should be placed in the enclosed envelope(s) or box and returned for scoring to Research for Better Schools. Trained scorers will be reviewing and scoring the Pre- and Post-Assessments after they have all been received. The results of the assessments will be confidential and the data will be reported in aggregate form in a final Project report. Individual classes will not be identified. This report will be made available to all participants.

If you have any questions, please call Dr. Fran Beyer or Dr. Russ Dusewicz at Research for Better Schools (215-574-9300).